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# THE EFFECTS OF ENVIRONMENTALLY FRIENDLY FLUIDIZED BED DRYING ON QUALITY OF *Viburnum opulus*

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## Abstract

Owing to their high antioxidant activity, fiber, vitamin and mineral content, dried fruits are healthy and nutritious snacks. However, some quality characteristics of fruits are adversely affected by drying. Therefore, drying temperature is very important to obtain healthy and nutritious dried products. Recently, fluidized bed drying technology has been spread all over the world as it is an efficient and environmentally friendly technique. This study investigated the effects of fluidized bed drying, which is a thermodynamic equilibrium drying technique, on quality characteristics of *V. opulus*. For this aim, the *V. Opulus* fruits were dried at 60 °C, 70 °C and 80 °C with an air flow rate of around 60 $m^3$/h for 5 h, 4 h and 3 h respectively. The moisture contents of *V. opulus* fruits were reduced by half (for medium-high temperature cases) after 90 min of drying process. Thanks to environmentally friendly fluidized bed drying system, *V. Opulus* fruits moved on the bed during drying. As the fruits did not stay in the same place, heat and mass transfer increased and uniform drying was achieved. Color, rehydration capacity, shrinking ratio, antioxidant activity, pH and sensory analysis were conducted to compare the sensory, chemical and physical properties of dried *V. opulus* fruits. The drying temperature affected the quality characteristics of *V. opulus* fruits significantly ($p<0.05$). The *V. opulus* fruits dried at 60 °C has the highest rehydration capacity and they were the most appreciated samples with regards of appearance, flavor and overall impression among the dried fruits ($p<0.05$).

*Key words:* antioxidant activity, drying, fluidized bed, sensory analysis

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